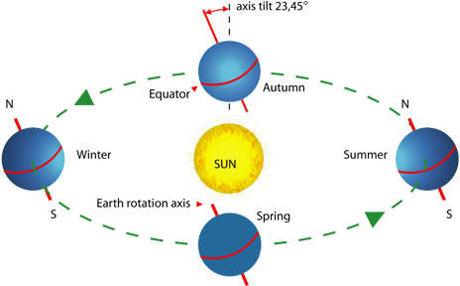
**Motion: Rotation**

* Turning or spinning of a body on its axis
* Earth’s axis is tilted 23.5° from the ecliptic (plane of Earth’s orbit around the Sun, and is the apparent path of the Sun throughout the year) {Earth’s tilt varies from 21.5° - 24.5°, this is known as “*obliquity*” 41k yr. cycle}
* Rate of rotation is once per 24 hour period, but speed or rotation varies depending on location on Earth (speed = dist./time) Speed at the equator = 1035mi/hr!
* Results in *diurnal motion* (the daily rising and setting of things in the sky
* Period of rotation can be measured in two ways:

-Solar Day: relative to the Sun, when the Sun returns to its original position in the sky (when a position on Earth realigns with the Sun – *24 hours*

-Sidereal Day: relative to distant stars, when a star other than the Sun returns to its original position in the night sky (when a position on Earth realigns with a star other than the Sun) – *23hr. 56min. 4sec.*

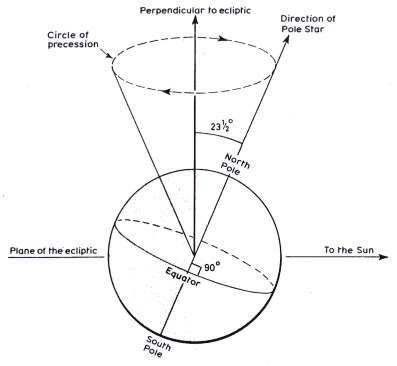
* *Earthquakes* can affect the rotation of Earth\*

**Motion: Revolution**

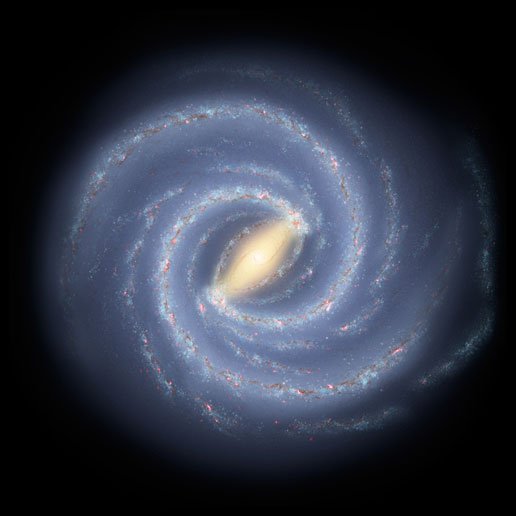
* The motion of a body along its orbit around some point in space
* Earth revolves around the Sun, once/yr., in an elliptical orbit at an avg. speed of 66,500 mi/hr. (875 yrs. @ 80mi/hr.!)
* Orbital shape varies – “*eccentricity*” changes from nearly circular to more elliptical over many hundreds of thousands of years.
* Distance from Sun varies throughout year:
* Perhileon: Pt. at which E is closest to Sun (~Jan 3)
* Aphelion: Pt at which E is furthest from Sun (~July 4)

\*Distance from Sun does NOT cause seasons – Seasons are caused by the amount of energy a hemisphere receives in a given 24hr. period which varies b/c of E’s tilted axis and revolution (pgs. 481-482)

* Revolution also results in the two hemispheres experiencing *seasonal constellations*.

**Motion: Precession**

* The “wobble” of the Earth’s axis, like a spinning top, over a 26,000yr. period.
* Axes point in different locations over time.
* Changes North/South Stars over time. (Vega, 14,000AD)
* This motion, along with changes in eccentricity and obliquity, affect long-term climate change and cause ice ages. (Milankovitch Cycles)

**Other Motions: Interstellar & Intergalactic**

* Sun (along with entire solar system) is moving in the direction of Vega @ 12.5mi/s
* The Sun and other nearby stars are revolving around the center of the Milky Way Galaxy at 155mi/s (one revolution takes 230 million yrs.)
* Milky Way Galaxy is moving in the direction of the neighboring Andromeda Galaxy, and will one day collide! (see wikispace for simulation)

**Vocab:**

* Rotation
* Revolution
* Precession
* Solar Day
* Sidereal Day
* Ecliptic
* Aphelion
* Perihelion
* Vernal Equinox
* Autumnal Equinox
* Summer Solstice
* Winter Solstice